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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY (Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference 03P464WO	FOR FURTHER ACTI	ON	See Form PCT/IPEA/416		
International application No.	International filing date (a	day/month/year)	Priority date (day/month/year)		
PCT/JP2003/013981	31 October 2003 (31.10.2003)	01 November 2002 (01.11.2002)		
International Patent Classification (IPC) or B23B 51/00, B28D 1/14	national classification and II	PC			
Applicant	KABUSHIKI KAISH	A MIYANAGA	A		
This report is the international pre Authority under Article 35 and tra	eliminary examination report, ansmitted to the applicant acc	established by this ording to Article 3	s International Preliminary Examining 6.		
2. This REPORT consists of a total		cluding this cover	sheet.		
3. This report is also accompanied b					
a. (sent to the applicant a	and to the International Burea	u) a total of 2	sheets, as follows:		
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sheets which s beyond the dis Supplemental	sclosure in the international a	which this Authori application as filed	ty considers contain an amendment that goes I, as indicated in item 4 of Box No. I and the		
b. (sent to the Interna	tional Bureau only) a tot , containi s indicated in the Supplement	ng a sequence list	type and number of electronic carrier(s)) ing and/or tables related thereto, in computer to Sequence Listing (see Section 802 of the		
This report contains indications in the second		s:			
Box No. I Basis of th	ne report				
Box No. II Priority					
Box No. III Non-estab	lishment of opinion with rega	ard to novelty, inve	entive step and industrial applicability		
Box No. IV Lack of unity of invention Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement					
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	efects in the international appl	lication			
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Box No. VIII Certain ob	Servations on the internation	ат арриоацоп			
Date of submission of the demand		Date of completio	n of this report		
22 April 2004 (22.	04.2004)	05	October 2004 (05.10.2004)		
Name and mailing address of the IPEA	'JP	Authorized office	r		
Faccimile No.		Telephone No.			



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PCT/JP2003/013981

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This report is based on twhich is language of a tra	translations from the original language into the following lanslation furnished for the purpose of:	language,
international search	(under Rules 12.3 and 23.1(b))	
publication of the in	nternational application (under Rule 12.4)	
international prelim	inary examination (under Rules 55.2 and/or 55.3)	
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	, as amended (toge	ether with any statement) under Article 19
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made, since they have (Rule 70.2(c)). the description, pa	been considered to go beyond the disclosure as filed, as	report and listed below had not been indicated in the Supplemental Box
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v.	Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability
	citations and explanations supporting such statement

. Statement				
Novelty (N)		Claims	1-5	YES
		Claims		NO
Inventive step (IS)	Claims		YES
	·	Claims	1-5	NO
Industrial applic	cability (IA)	Claims	1-5	YES
		Claims		NO

2. Citations and explanations

Document 1: JP 62-57808 A (Honda Motor Co., Ltd.), 13

March 1987

Document 2: Microfilm of the specification and drawings annexed to the Japanese Utility Model

Application No. 123716/1989 (Laid-open No. 62714/1991), 19 June 1991

Document 3: JP 59-64212 A (Andreas Meier), 12 April 1984

Document 4: JP 57-21213 A (Mitsubishi Metal Corporation), 3 February 1982

Document 5: JP 51-62475 A (Kobe Steel, Ltd.), 31 May 1976

Claims 1 to 3

The invention set forth in claims 1 to 3 does not involve an inventive step in the light of documents 1 and 2 cited in the international search report and newly cited documents 3 to 5.

The "auxiliary blades (8, 10a, 10b)" of the prior art in document 1 (page 2, upper left column, lines 3 to 12; fig. 1 and 2) and the "recessed portion (5)" set forth in document 2 both correspond to the "notch with a groove bottom" of this application.

In addition, the groove surrounded by "inner side blades (52, 62, 72) and peaks (53, 63, 73)" disclosed in document 3 correspond to the "notch with a groove bottom"

of this application. In particular, page 2, upper right column, line 2 to lower left column, line 2 of document 3 sets forth a feature wherein such a structure acts as a chip separating piece.

Document 4 (page 3, upper left column, line 18 to upper right column, line 1) sets forth a feature wherein an arbitrarily-defined shape can be used as the bearing surface view of the groove which is provided to the central part of the blade tip of a drill bit, and document 5 (fig. 1) sets forth a "semicircular long hole shape".

It would be easy for a person skilled in the art to apply said feature to the inventions set forth in documents 1 to 3 to employ an arbitrarily-defined shape as the bearing surface view.

Claims 4 and 5

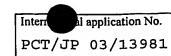
The invention set forth in claims 4 and 5 does not involve an inventive step in the light of documents 1 and 2 cited in the international search report and newly cited documents 3 to 5.

Document 1 (fig. 2 (a)), document 2 (description, page 4, lines 9 to 14) and document 3 (fig. 7) set forth a feature wherein the notch provided to the central part of the blade tip becomes wider from the deepest part.

Documents 1 to 5 do not set forth a feature wherein the notch is constituted in "an arc-shaped surface when viewed from the side", but it would be easy for a person skilled in the art to employ an arc surface shape as a shape wherein the groove increases in width from the deepest part.

(Document 5 (fig. 1) is acknowledged to be an arc surface shape when viewed from the side, depending on the direction.)

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In addition, documents 1 to 3 set forth a feature wherein three cutting blades are used, and the shape of the notch when viewed from the bottom is merely a design matter which a person skilled in the art could change as necessary.

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VIII. Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claim 5 received by the International Preliminary Examining Authority on 5 August 2004

The aforementioned claim 5 contains the wording "the drill bit set forth in one of claims 1 to 4", but if claim 5 is dependent on claim 3, this disclosure is inconsistent with a notch "with a three-lobed shape when viewed from the bearing surface".